



Appln. No. 10/718,391
Amendment filed April 17, 2008
Reply to Office Action of March 28, 2008
Annotated Sheet

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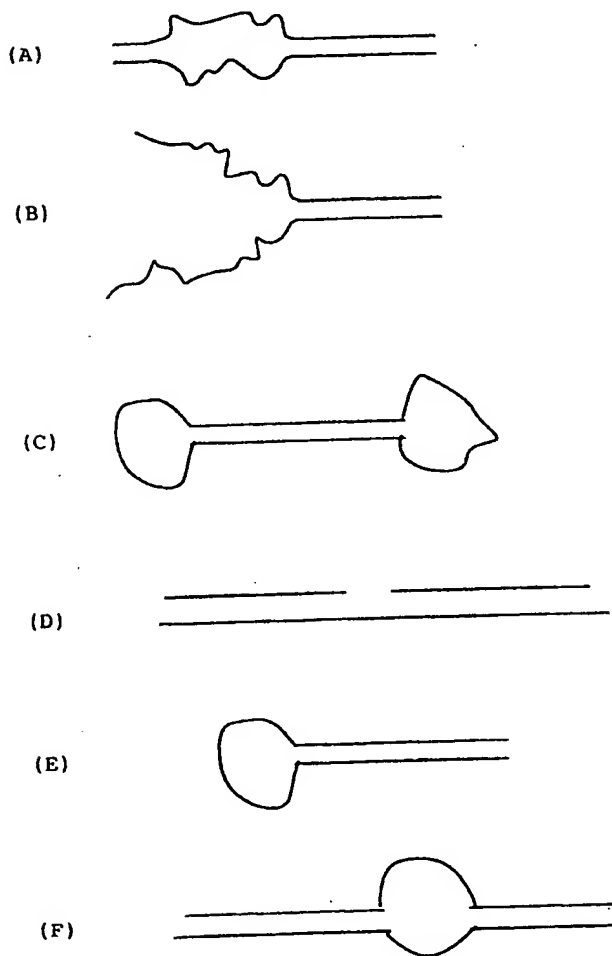


Figure 1 (A-F)

Construct Forms Comprising at Least one Single-Stranded Region

~~2/23~~ 2/29

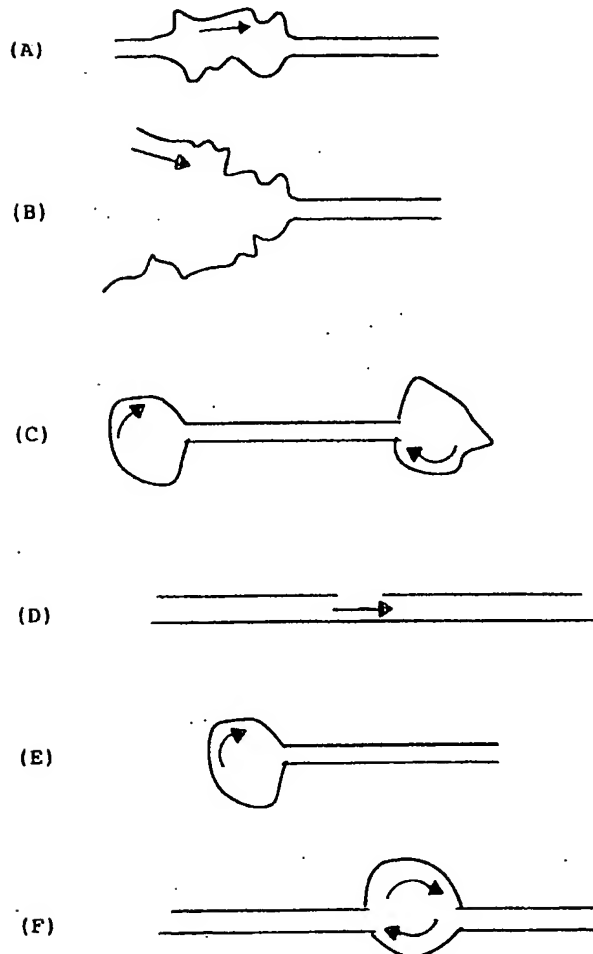


Figure 2 (A-F)

Functional Forms of the Construct

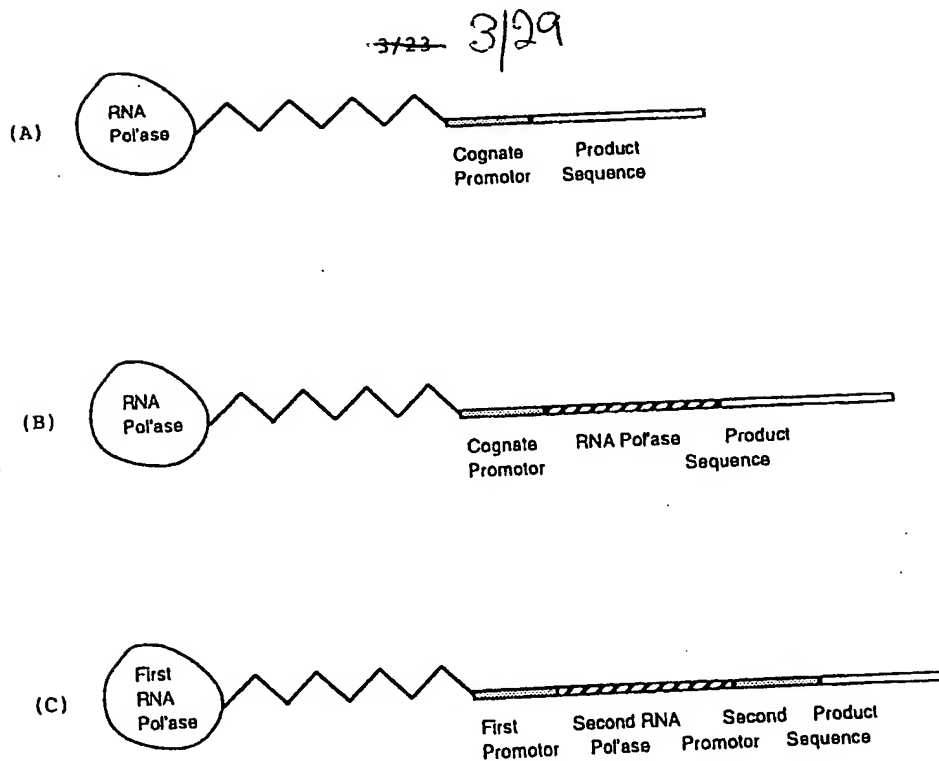
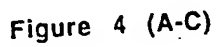


Figure 3 (A-C)

Three Constructs with an RNA Polymerase
Covalently Attached to a Transcribing Cassette



Three Constructs with Promoters for Endogenous RNA Polymerase

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M13mp18. Seq Length: 7250

```

1.   AATGCTACTA CTATTAGTAG AATTGATGOC AOCITTTTCAG CTCGGGCCCC
51.  AAATGAAAAT ATAGCTAAAC AGGTTATTGA CCATTTCGGA AATGTATCTA
101. ATGGTCAAAC TAAATCTACT OGTTCGCAGA ATTGGGAATC AACTGTTACA
151. TGGAAATGAAA CTTCAGACA CCGTACTTTA GTTGCATATT TAAAACATGT
201. TGAGCTACAG CACCAGATTC AGCAATTAAG CTCTAAGCCA TCCGCAAAAA
251. TGACCTCTTA TCAAAGGAG CAATTAAAGG TACTCTCTAA TCTGAOCTG
301. TTGGAGTTTG CTTCGGTCTT GGTTCGCTTT GAAGCTCGAA TTAAACGGG
351. ATATTTGAAG TCTTTGGGGC TTCTCTTAA TCTTTTGAT GCAATGCGT
401. TTGCTCTCGA CTATAATAGT CAGGTAAGG AOCGTATTTT TGATTATGG
451. TCATTCTOGT TTTCTGAAC TTTTAAAGCA TTGAGGGGG ATTCAATGAA
501. TATTTATGAC GATTCGCAG TATTGGAOGC TATOCAGTCT AAACATTTTA
551. CTATTACCCC CTCTGGCAA ACTTCTTTTG CAAAAGCTC TOGCTATTTT
601. GGTTTTATC GTGCTCTGCT AAAGAGGGT TATGATAGTG TTGCTCTTAC
651. TATGCTOGT AATTCCTTTT GGGTTATGT ATCTGCATTA GTTGAATGTG
701. GTATTOCTAA ATCTCAACTG ATGAATCTTT CTACCTGTAA TAATGTTGTT
751. CCGTTAGTTC GTTTTATTAA CGTAGATTTT TCTTCCAAC GTCTGACTG
801. GTATAATGAG CCAGTTCTTA AAATGCGATA AGGTAATTC CAATGATTAA
851. AGTTGAAATT AAACATCTC AAGCCCAATT TACTACTOGT TCTGGTGTTC
901. TGGTCAGGGC AAGCTTATT CACTGAATGA GCAGCTTTGT TAOGTTGATT
951. TGGGTAATGA ATATCGGTT CTGTGGAAG ATTACTCTTG ATGAAGGTCA
1001 GOCAGCTAT GCGCTGCTC TGTACACGT TCATCTGTC TCTTTCAAAG
1051 TTGGTCAGTT CCGTTCCCTT ATGATTGAOC GTCTGCGCT CGTTCGGCT
1101 AAGTAACATG GAGCAGGTG CGGATTGGA CACAATTTAT CAGGOGATGA
1151 TACAAATCTC CGTTGTACCT TGTTCGGGC TTGGTATAAT CGCTGGGGGT
1201 CAAAGATGAG TGTTTAGTG TATCTTTTG OCTCTTTGT TTAGGTTGG

```

Figure 5

M13mp18 Nucleic Acid Sequence

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1251	TGCGTCTGTA	GTGBCATTAC	GTATTTTACC	CGTTTAATGG	AACTTCTCTC
1301	ATGAAAAAGT	CTTTAGTCT	CAAAGCCTCT	GTAGCGGTG	CTAOCCTGCT
1351	TCGGATGCTG	TCTTTCGCTG	CTGAGGGTGA	CGATCCCGCA	AAAGCGGCT
1401	TTAACTCCCT	GCAAGCTCA	GCGACCGAAT	ATATCGGTTA	TGCGTGGGG
1451	ATGGTTGTTG	TCATTGTGG	CGCAACTATC	GGTATCAAGC	TGTTTAAGAA
1501	ATTCACCTCG	AAAGCAAGCT	GATAAACCGA	TACAATTAAA	GGCTCTTTT
1551	GGAGCCTTTT	TTTTTGAGA	TTTCAACGT	GAAAAATTA	TTATTCGAA
1601	TTCTTTAGT	TGTTCTTTC	TATTCTCACT	CGCTGAAAC	TGTTGAAAGT
1651	TGTTTAGCAA	AACCCATAC	AGAAAATTCA	TTTACTAACG	TCTGGAAGA
1701	CGACAAACT	TTAGATGTT	ACGCTAACTA	TGAGGGTTGT	CTGTGGAATG
1751	CTACAGGGT	TGTAGTTTGT	ACTGGTGAAG	AACTCAGTG	TTACGGTACA
1801	TGGGTTCTTA	TGGGCTTGC	TATCCTGAA	AATGAGGGTG	GTGGCTCTGA
1851	GGGTGGGGT	TCTGAGGGTG	GCGGTTCTGA	GGGTGGGGT	ACTAAOCTC
1901	CTGAGTACGG	TGATACACCT	ATTCCGGGCT	ATACTTATAT	CAACCTCTC
1951	GACGGCACTT	ATCCGCTGG	TACTGAGCAA	AACCGCTA	ATCCTAATCC
2001	TTCTCTTGAG	GAGTCTCAGC	CTCTTAATAC	TTTCATGTTT	CAGAATAATA
2051	GGTTCCGAAA	TAGGCAGGGG	GCATTAACCTG	TTTATACGGC	CACTGTACT
2101	CAAGGCACTG	AACCGTTAA	AACTTATTAC	CAGTACACTC	CTGTATCATC
2151	AAAAGCCATG	TATGACGCTT	ACTGGAACGG	TAAATTCAGA	GACTGCGCTT
2201	CAAGGCACTG	AACCGTTAA	AACTTATTAC	CAGTACACTC	CTGTATCATC
2151	AAAAGCCATG	TGCTCAAC	TCCTGTCAAT	GCTGGGGGG	GCTCTGGTGG
2201	TCATTCTGG	CTTTAATCAA	GATCCATTGG	TTTGTGAATA	TCAAGGCCAA
2251	TGCTCTGACC	TGCTCAAC	TCCTGTCAAT	GCTGGGGGG	GCTCTGGTGG
2301	TGTTTCTGGT	GGGGCTCTG	AGGGTGGTGG	CTCTGAGGGT	GGGGTCTCTG
2351	AGGGTGGGG	CTCTGAGGGA	GGGGTTCGG	GTTGGTGGCTC	TGTTTCGGT
2401	GATTTTGATT	ATGAAAAGAT	GGCAACGCT	AATAAGGGGG	CTATGACCGA
2451	AAATGCGGAT	GAAAAAGGCG	TACAGTCTGA	CGCTAAAGGC	AACTTGATT

Figure 5

M13mp18 Nucleic Acid Sequence

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2551 TCGGGGCTTG CTAATGGTAA TGGTCTACT GGTGATTTTG CTGGCTCTAA
2601 TTOCCAAATG GCTCAAGTGG GTGACGGTGA TAATTCACCT TTAATGAATA
2651 ATTTGCGTCA ATATTTACCT TCGCTGCTC AATCGGTTGA ATGTGCGGCT
2701 TTTGTCTTTA GCGCTGGTAA ACCATATGAA TTTTCTATTG ATTGTGACAA
2751 AATAAACTTA TTGCTGGTG TCTTTGCGT TCTTTTATAT GTTGCCACCT
2801 TTATGTATGT ATTTTCTACG TTTGCTAACA TACTGCGTAA TAAGGAGTCT
2851 TTATCATGOC AGTTCTTTTG GGTATTOGT TATTATTGCG TTTCTCGGT
2901 TTCCTCTGG TAACCTTGTT CGGCTATCTG CTTACTTTTC TTA AAAAGG
2951 CTGCGTAAG ATAGCTATTG CTATTTCAAT GTTCTTGCT CTTATTATTG
3001 GGCTTAACTC AATTCTTGTT GGTATCTCT CTGATATTAG CGCTCAATTA
3051 CCGCTGACT TTGTTGAGG TGTTCAGTTA ATTCTGCGT CTAATGCGCT
3101 TCGCTGTTT TATGTTATTC TCTCTGTAAG GGCTGCTATT TTCATTTTGG
3151 ACGTTAAACA AAAAATCGTT TCTTATTGG ATTGGGATAA ATAATATGGC
3201 TGTTTATTTT GTAAGTGGCA AATTAGGCTC TGGAAAGAGC CTGTTAGG
3251 TTGGTAAGAT TCAGGATAAA ATTGTAGCTG GGTGCAAAAT AGCAACTAAT
3301 CTGATTTTAA GGCTTCAAAA OCTGCGCAA GTGGGAGGT TCGCTAAAAC
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3401 CTATTGGGGG CGGTAATGAT TCCTACGAATG AAAATAAAAA CGGCTTGCTT
3451 GTTCTGATG AGTGGGTAC TTGGTTTAAAT ACGGTTCTT GGAATGATAA
3501 GGAAGACAG CCGATTATTG ATTGGTTTCT ACTGCTGCT AAATTAGGAT
3551 GGGATATTAT TTTCTTGTT CAGGACTTAT CTATTGTTGA TAAACAGGCG
3601 CGTCTGCTAT TAGCTGAACA TGTGTTTAT TGTGCTGCTC TGGACAGAA
3651 TACTTTAOC TTTGTGGTA CTTTATATTC TCTTATTACT GCGTGA AAA
3701 TGCTCTGOC TAAATTACAT GTTGGGTTG TAAATATGG CGATTCTCAA
3751 TTAAGCCCTA CTGTTGAGG TTGGCTTTAT ACTGTAAGA ATTTGTATAA
3801 CGCATATGAT ACTAACAGG CTTTCTAG TAATTATGAT TCGGTGTTT
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3851	ATTCTTATTT	AACGOCITAT	TTATCACACG	GTCGGTATTT	CAAAOCATTA
3901	AATTTAGGTC	AGAAGATGAA	ATTAACATAA	ATAATATTGA	AAAAGTTTTT
3951	TOGOGTICTT	TGTCITGCGA	TTGGATTTCG	ATCAGCATT	ACATATAGTT
4001	ATATAOCCA	AOCTAAGGCG	GAGGTAAAA	AGGTAGTCTC	TCAGAOCTAT
4051	GATTTTGATA	AATTCACAT	TGACTCTTCT	CAGGTCTTA	ATCTAAGCTA
4101	TCGCTATGTT	TTCAAGGATT	CTAAGGAAAA	ATTAATTAAT	AGOGAOGATT
4151	TACAGAAGCA	AGGTATTCA	CTCACATATA	TTGATTTATG	TACTGTTTCC
4201	ATTAATAAAG	GTAATTCAAA	TGAAATTGTT	AAATGTAATT	AATTTTGTTT
4251	TCTTGATGTT	TGTTTCATCA	TCTTCTTTTG	CTCAGGTAAT	TGAAATGAAT
4301	AATTOGOCCT	TGOGOGATTT	TGTAACCTGG	TATTCAAAGC	AATCAGGCGA
4351	AATOCGTTATT	GTTTCTCCCG	ATGTAAAAGG	TACTGTTACT	GTATATTCAT
4401	CTGACGTAA	AOCTGAAAT	CTACGCAATT	TCITTTATTC	TGTTTTAOGT
4451	GCTAATAATT	TTGATAATGGT	TGGTTCAATT	OCTTOCATAA	TTCAGAAGTA
4501	TAATOCAAAC	AATCAGGATT	ATATTGATGA	ATTGOCATCA	TCTGATAATC
4551	AGGAATATGA	TGATAATTC	GCTOCTTCTG	GTGGTTTCTT	TGTTCCGCAA
4601	AATGATAATG	TACTCAAAC	TTTTAAAATT	AATAAGTTTC	GGGCAAAGGA
4651	TTTAATAOGA	GTGTGGAAT	TGTTTGTAAT	GTCTAATACT	TCTAAATCCT
4701	CAATGTATT	ATCTATTGAC	GGCTCTAATC	TATTAGTTGT	TAGTGCTCCT
4751	AAAGATATTT	TAGATAOCT	TOCTCAATTC	CTTCTACTG	TTGATTTGOC
4801	AACTGAOCAG	ATATTGATTG	AGGGTTTGAT	ATTTGAGGTT	CAGCAAGGTG
4851	ATGCTTTAGA	TTTTTCATTT	GCTGCTGGCT	CTCAGGTGG	CACTGTGCA
4901	GGGGGTGTTA	ATACTGAOOG	OCTCAOCTCT	GTTTTATCTT	CTGCTGGTGG
4951	TTGGTTGGGT	ATTTTAAATG	GCGATGTTTT	AGGGCTATCA	GTTGOGGCAT
5001	TAAAGACTAA	TAGOCATTCA	AAAATATTGT	CTGTGOCACG	TATTCCTAOG
5051	CTTTCAGGTC	AGAAGGGTTC	TATCTCTGTT	GGCCAGAATG	TCCCTTTTAT
5101	TAAAGACTAA	TAGOCATTCA	AAAATATTGT	CTGTGOCACG	TATTCCTAOG
5151	CGATTGAGCG	TCAAAATGTA	GGTATTTCOA	TGAGOGTTTT	TOCTGTTGCA

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5201 ATGGCTGGGG GTAATATTGT TCTGGATATT AOCAGCAAGG CCGATAGTTT
5251 GAGTTCTCT ACTCAGGCAA GTGATGTTAT TACTAATCAA AGAAGTATTG
5301 CTACAAAGGT TAATTTGGGT GATGGACAGA CTCITTTACT CGGTGGGCTC
5351 ACTGATTATA AAAACACTTC TCAAGATTCT GGGTACGGT TOCTGTCTAA
5401 AATCCCTTTA ATCGGGCTCC TGTTTAGCTC CCGCTCTGAT TOCAAAGAGG
5451 AAAGCAAGTT ATACGTGCTC GTCAAAGCAA CCATAGTAAG CGOCTGTAG
5501 CGGGGCATTA AGGGGGGGG GTGTGGTGGT TAGGGGAGC GTGAAGGCTA
5551 CACTTGCCAG CGOCTAGGG OGGCTGCTT TCGCTTTCTT CCGTTCCTT
5601 CTGGCCAGGT TGGGGGGCTT TGGGGTCAA GCTCTAAATC GGGGGCTCC
5651 TTTAGGGTTC CGATTTAGTG CTTTACGGCA CCTGGAGGCC AAAAACTTG
5701 ATTTGGGTGA TGGTTCAAGT AGTGGGOCAT CGOCTGATA GACGGTTTTT
5751 CGOCTTTGA CGTTGGAGTC CACGTTCTTT AATAGTGGAC TCTTGTTCOA
5801 AACTGGAACA AACTCAAGC CTATCTGGG CTATCTTTT GATTTATAAG
5851 GGATTTTGGC GATTTGGGAA CCAACATCAA ACAGGATTTT CGOCTGCTGG
5901 GGCAGAGCAG CGTGGAGGGC TTGCTGCAAC TCTCTCAGG CCAGGGGGTG
5951 AAGGGCAATC AGCTGTTGGC CGTCTGGCTG GTGAAAAGAA AAAACAGCT
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6051 TGGAGCTGGC AAGACAGGT TGGGAGTGG AAAGGGGGCA GTGAGGGCAA
6101 CGCAATTAAT GTGAGTTAGC TCACTCATTA GGCAGGGCAG GCTTTACACT
6151 TTATGCTTCC GGGTGGTATG TTGTGTGGAA TTGTGAGGG ATAACAATTT
6201 CACACAGGAA ACAGCTATGA CCATGATTAC GAATGGAGC TGGGTAGGG
6251 GCGATGCTCT AGAGTGGAGC TGCAGGCATG CAAGCTTGGC ACTGGGGGTC
6301 GTTTTACAAC GTGGTGGCTG GGAAGAGGCT GGGGTAGGC AACTTAATCG
6351 CCTTGCAGCA CAATGGGCTT TGGGAGCTG GGGTAATAGC GAAGAGGGC
6401 GCAGGATGG CCGTTGGCAA CAGTTGGGCA GCGTAATGG CGAATGGGC
6451 TTTGGCTGGT TGGGGGAGC AGAAGGGTG CGGAAAGCT GGGTGGAGTG
6501 CGATCTTCT GAGGGGAGTA CGGTGGTGT CCGCTCAAC TGGCAGATGC

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6551	AAGGTTAAGA	TGCGCCATC	TACACCAACG	TAACTATOC	CATTAGGTC
6601	AATCGCGGT	TTGTTCCAC	GGAGAATCG	ACGGGTTGTT	ACTCGCTCAC
6651	ATTTAATGTT	GATGAAAGCT	GGCTACAGGA	AGGCGAGACG	CGAATTATTT
6701	TTGATGGCGT	TOCTATTGGT	TAAAAAATGA	GCTGATTTAA	CAAAAATTTA
6751	ACGCGAATTT	TAACAAAATA	TTAAGTTTA	CAATTTAAAT	ATTTGCTTAT
6801	ACAATCTTCC	TGTTTTTGGG	GCTTTTCTGA	TTATCAACCG	GGGTACATAT
6851	GATTGACATG	CTAGTTTAC	GATTACGGTT	CATCGATTCT	CTTGTTTGCT
6901	CCAGACTCTC	AGGCAATGAC	CTGATAGCCT	TTGTAGATCT	CTCAAAAATA
6951	GCTACCTCT	CCGGCATGAA	TTTATCAGCT	AGAACGGTTG	AATATCATAT
7001	TGATGGTGAT	TTGACTGTCT	CCGGCCTTTC	TCAOCTTTT	GAATCTTTAC
7051	CTACACATTA	CTCAGGCATT	GCATTTAAAA	TATATGAGGG	TTCTAAAAAT
7101	TTTTATCCTT	GGGTTGAAAT	AAAGGCTTCT	CCCGCAAAAG	TATTACAGGG
7151	TCATAATGTT	TTTGGTACAA	CCGATTTAGC	TTTATGCTCT	GAGGCTTTAT

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COMPLEMENTARY TO M₁₃

POSITION	5' . . . 3'	POSITION	
645	AGCAACACTATCAT	631	M ₁₃ /1
615	ACGACGATAAAAAAC	601	M ₁₃ /2
585	TTTTGCAAAAGAAGT	571	M ₁₃ /3
555	AATAGTAAATGTTT	541	M ₁₃ /4
525	CAATACTGCGGAATG	511	M ₁₃ /5
495	TGAATCCCCCTCAA	481	M ₁₃ /6
465	AGAAAACGAGAATGA	451	M ₁₃ /7
435	CAGGTCTTTACCTG	421	M ₁₃ /8
405	AGGAAAGCGGATTGC	391	M ₁₃ /9
375	AGGAAGCGCGAAAGA	361	M ₁₃ /10

COMPLEMENTARY TO SS PHAGE DNA

POSITION	5' . . . 3'	POSITION	
351	ATATTTGAAGTCTTT	366	M ₁₃ /11
371	TCTTTTGTATGCAAT	386	M ₁₃ /12
391	CTATAACTCAGGG	406	M ₁₃ /13
411	TGATTTATGGTCATT	426	M ₁₃ /14
431	GTTTAAAGCATTTGA	446	M ₁₃ /15
451	TATTTATGACGATTC	466	M ₁₃ /16
471	TATCCAGTCTAAACA	486	M ₁₃ /17
491	CTCTGGCAAACTTC	506	M ₁₃ /18
511	TCGCTATTTTGGTTT	526	M ₁₃ /19
531	AAACGAGGGTTATGA	546	M ₁₃ /20

Figure 6

Primers for Nucleic Acid Production
Derived from M13mp18 Sequence

12/23/2009

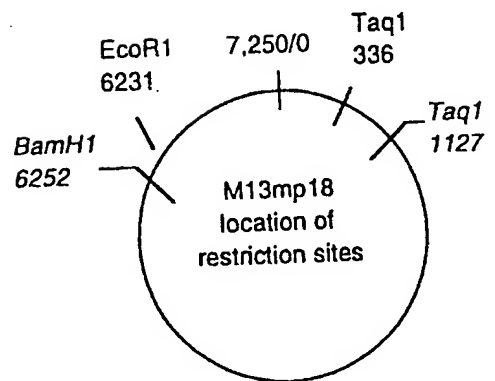
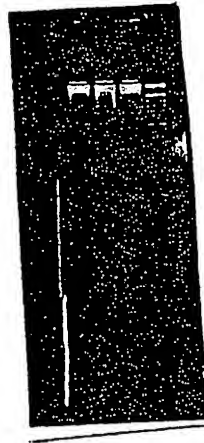


Figure 7

Appropriate M13mp18 Restriction Sites

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Lane 1: from calf thymus + Taq digested mp18 amplification reaction
Lane 2: from Taq digested mp18 amplification reaction
Lane 3: from calf thymus amplification reaction
Lane 4: øX174 Hinf1 size marker

Figure 8

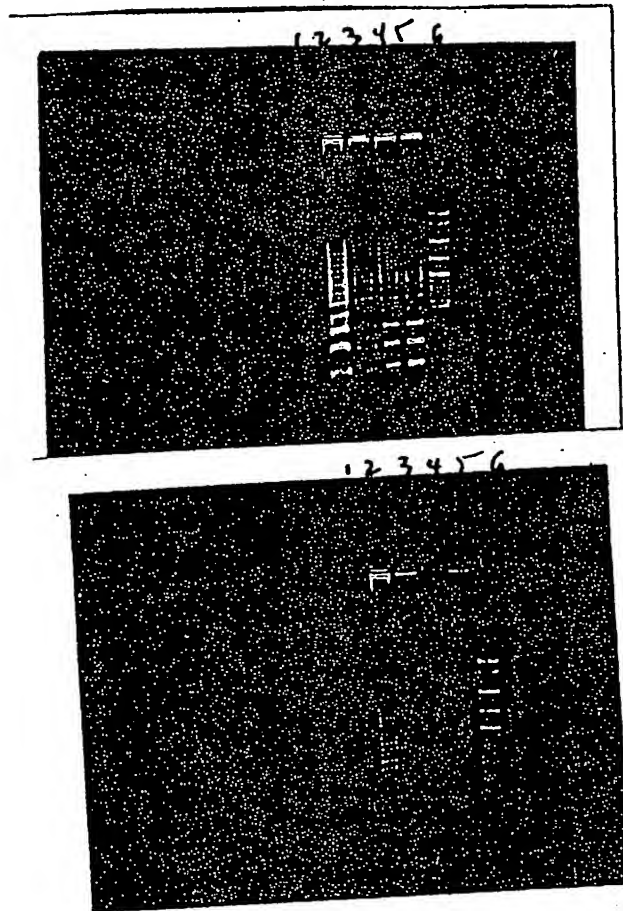
~~14/23~~ 14/29



Lane 1: no template
Lane 2: mp18 template, phosphate buffer
Lane 3: MspI/pBR322 size marker
Lane 4: mp18 template, MOPS buffer

Figure 9

~~15/23~~ 15/29

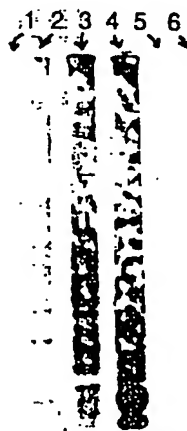


Top= (+) Template
Bottom= (-) Template

Lane 1: phosphate buffer
Lane 2: MES
Lane 3: MOPS
Lane 4: DMAB
Lane 5: DMG
Lane 6: pBR322/MspI size marker

Figure 10

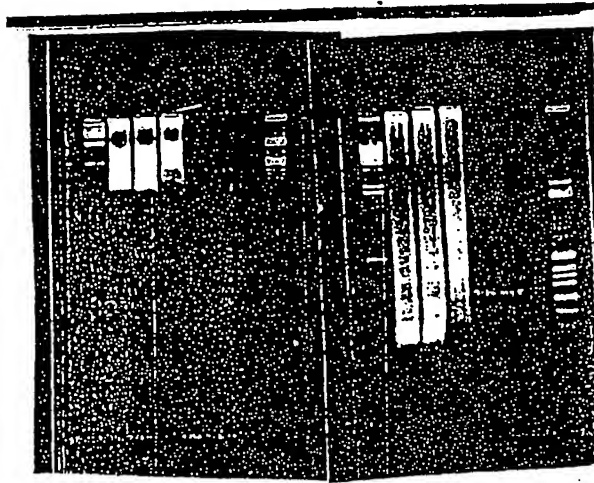
~~16/23~~ 16/29



Lane 1: DMAB buffer, no template
Lane 2: DMAB buffer, mp18 template
Lane 3: DMG buffer, no template
Lane 4: DMG buffer, mp18 template
Lane 5: No reaction
Lane 6: 200 ng Taq I digested mp18
size marker/positive control

Figure 11

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First Time Interval Second Time Interval

Agarose Gel Analysis

Lane 1: lambda Hind III marker
Lane 2: Amp/Untreated
Lane 3: Amp/Kinased
Lane 4: Amp/Kinased/Ligated
Lane 5: PCR/Untreated
Lane 6: PCR/Kinased
Lane 7: PCR/Kinased/Ligated
Lane 8: phiX174/HinfI marker

Figure 12

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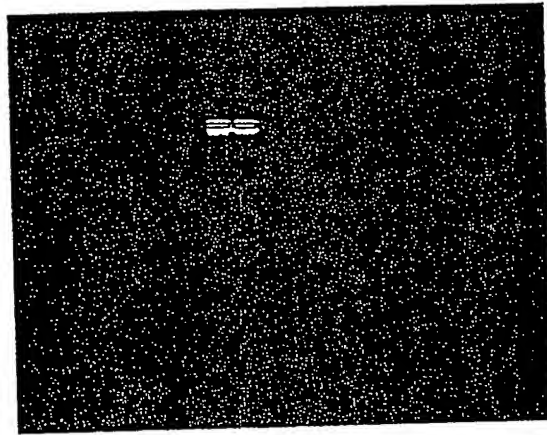
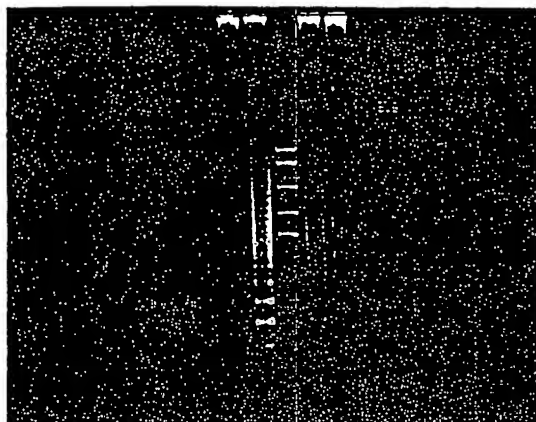


Figure 13

~~19/23~~ 19/29

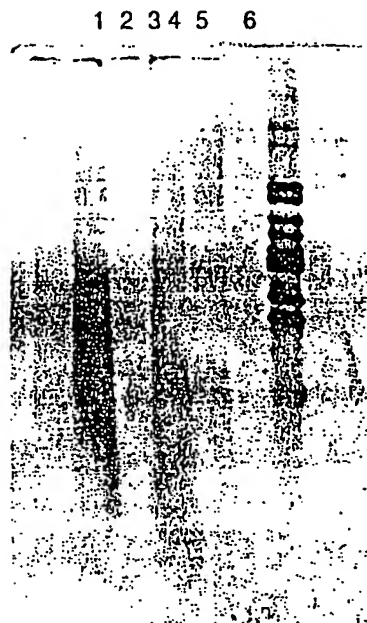
1 2 3 4 5 6



Lane 1: Primers alone
Lane 2: Primers + taq digested M13 DNA
Lane 3: Molecular weight markers
Lane 4: Primers + RNA
Lane 5: Primers alone
Lane 6: M13 digested DNA
Buffer was dimethyl amino glycine, pH 8.6

Figure 14

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Lane 1: Primers alone
Lane 2: Primers + taq digested M13 DNA
Lane 3: Molecular weight markers
Lane 4: Primers + RNA
Lane 5: Primers alone
Lane 6: M13 digested DNA
Buffer was dimethyl amino glycine, pH 8.6

Figure 15

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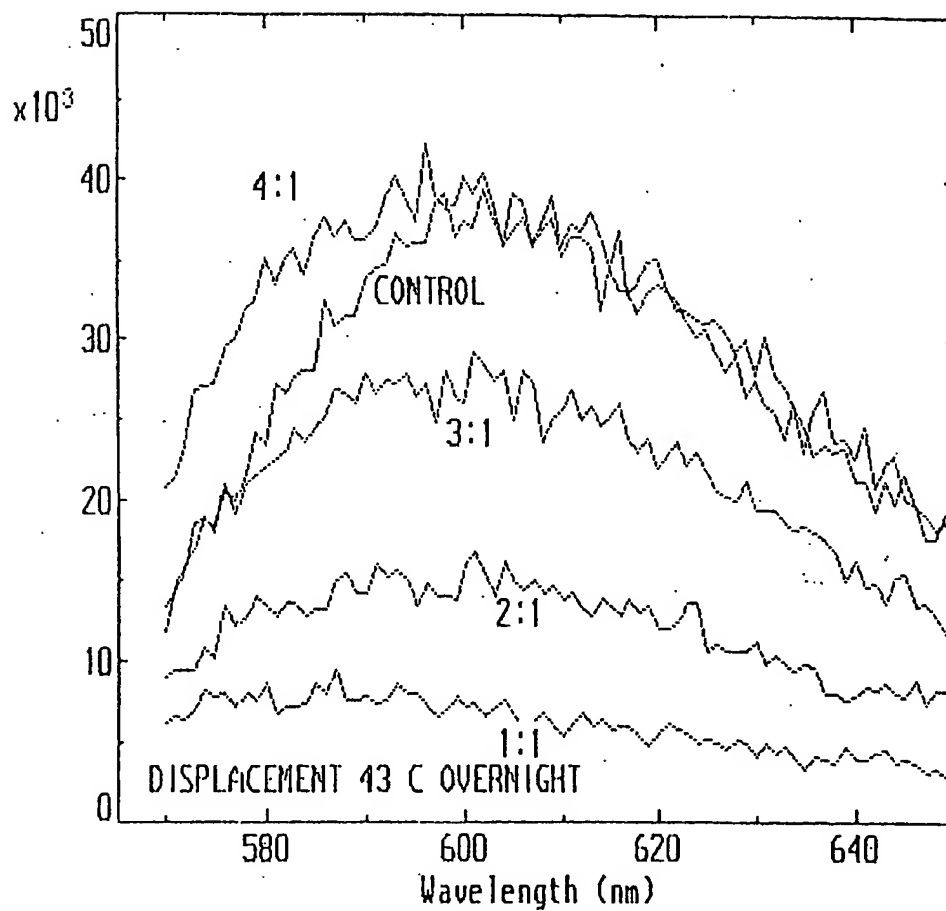


Figure 16

~~22/23~~ 22/29

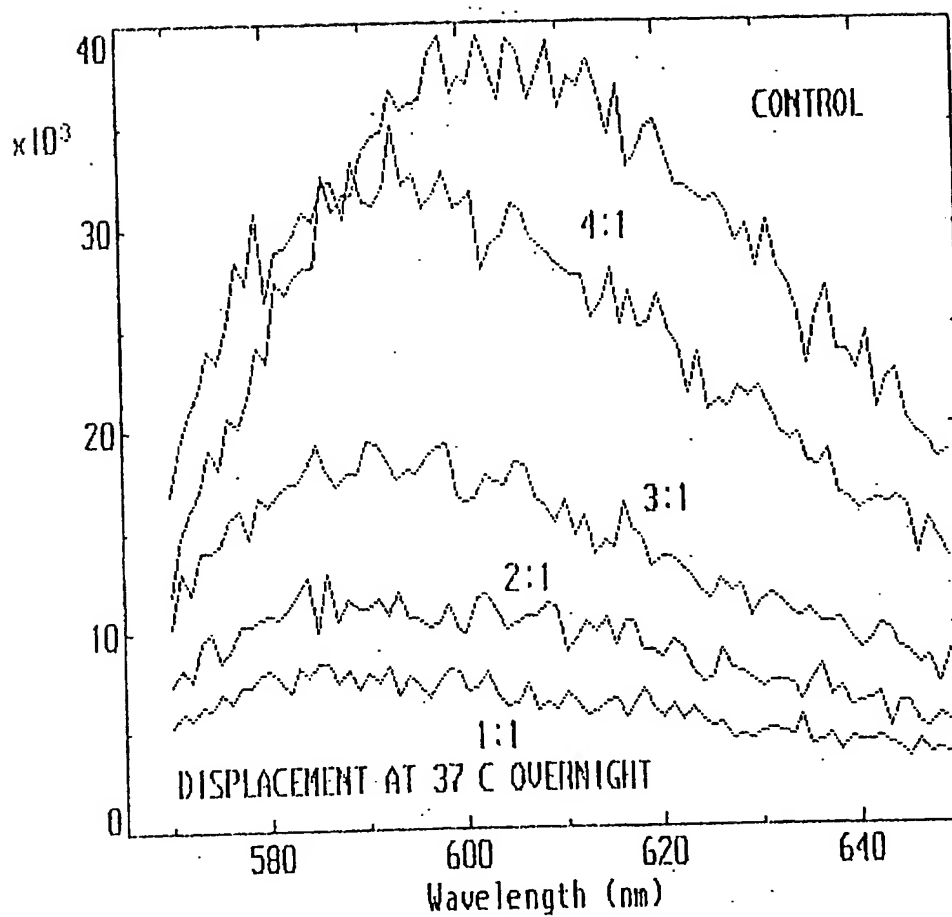


Figure 17

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pIBI 31-BH5-2

(met AUG of Lac z (T7 Promotor region....
LAC PROMOTOR..ATG ACC ATG ATT ACG CCA GAT ATC AAA TTA ATA CGA CTC ACT ATA
oligo 50-mer 3'- tac t'aa t'gc ggt' ct'a t'ag t'Vt aat' tat' gct' gag t'ga t'at' c-5'
10 base insert
T7 RNA Start (← T3 Promotor Region)
IGGG CTC ICCT TTA GTG ACG GTT AAT
.....) ← T3 Start Signal

pIBI 31 BSII/HCV

(met AUG of Lac z (T3 Promotor region --) T3 RNA Start
LAC PROMOTOR ..ATG ACC ATG ATT ACG CCA AGC TCG AAA TTA ACC CTC ACT AAA /GGG
oligo 50-mer 3'- tac t'aa t'ac t'aa t'gc ggt' t'V--10 base insert--.....
(M← T7 Promotor Region)
MULTIPLE CLONING SITE + 390 BASE INSERT CTA /TAG TGA GTC CGT ATT AAT....
← T7 Start Signal
5'-ct'a t'ag t'ga gt'c gt'a tt'a at'.....

Figure 18

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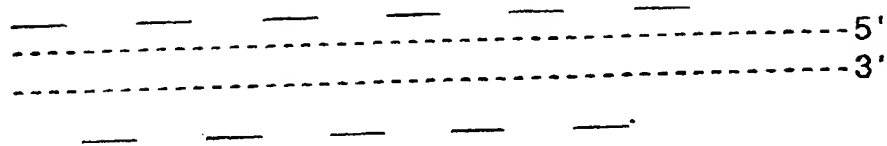
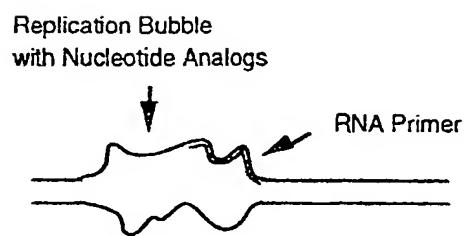


Figure 19

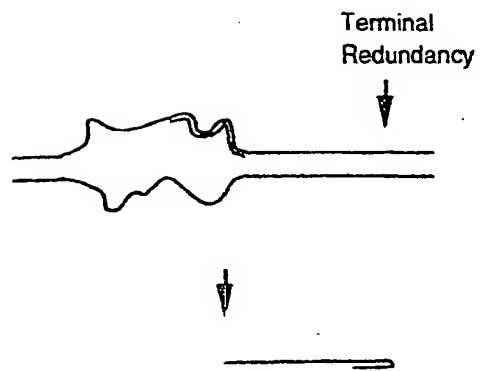
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**Primer-Dependent DNA Production
Using Nucleic Acid Construct**

Figure 20

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Hairpin Product

Figure 21

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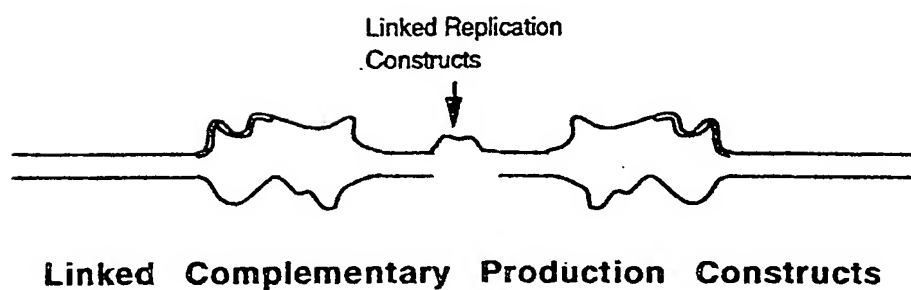
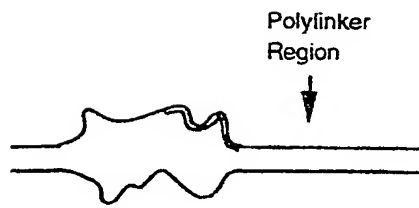


Figure 22

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Cloning Site in Production Constructs

Figure 23

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ARRANGEMENT OF OLIGONUCLEOTIDE PRIMERS IN AMPLIFICATION REACTION

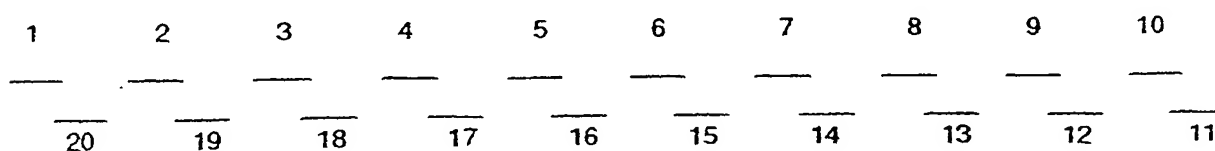


Figure 24